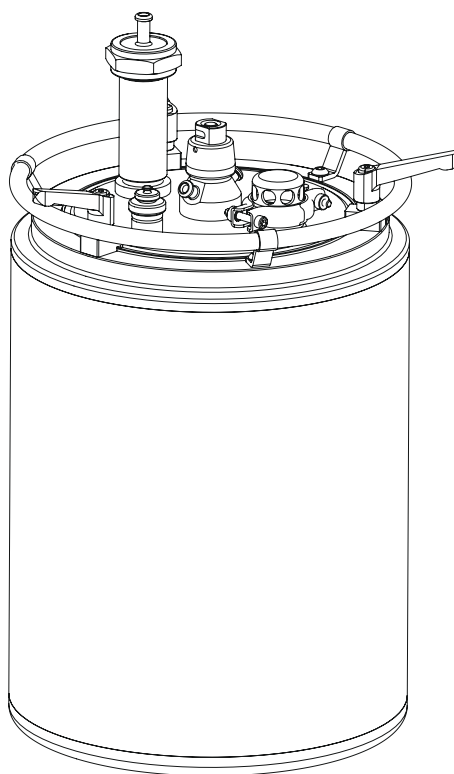


Alfa Laval SB Carlsberg Flask

Sampling valves



Lit. Code

200007935-2-EN-GB

Instruction Manual

Published by
Alfa Laval Kolding A/S
Albuen 31
DK-6000 Kolding, Denmark
+45 79 32 22 00

The original instructions are in English

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1 Declarations of Conformity

1.1 EU Declaration of Conformity

The designated company

Alfa Laval Kolding A/S, Albuen 31, DK-6000 Kolding, Denmark, +45 79 32 22 00

Company name, address and phone number

Hereby declare that

Valve

Designation

SB Carlsberg Flask

Type

is in conformity with the following directives with amendments:

- Pressure Equipment Directive (PED) 2014/68/EU *category 1 and subjected to assessment procedure Module A. May only be used for fluids in Group 2.*

The person authorised to compile the technical file is the signer of this document.

Vice President BU Hygienic Fluid Handling

Head of Product Management

Title

Mikkel Nordkvist

Name

Kolding, Denmark

Place

2025-02-01

Date (YYYY-MM-DD)



Signature

DoC Revison_ 01_022025 / This Declaration of Conformity replaces Declaration of Conformity dated 2022-11-04



1.2 UK Declaration of Conformity

The designated company

Alfa Laval Kolding A/S, Albuen 31, DK-6000 Kolding, Denmark, +45 79 32 22 00

Company name, address and phone number

Hereby declare that

Valve

Designation

SB Carlsberg Flask

Type

is in conformity with the following directives with amendments:

- The Pressure Equipment (Safety) Regulations 2016 *category 1 and subjected to assessment procedure Module A. May only be used for fluids in Group 2.*

Signed on behalf of: Alfa Laval Kolding A/S.

Vice President BU Hygienic Fluid Handling

Head of Product Management

Title

Mikkel Nordkvist

Name

Kolding, Denmark

Place

2025-02-01

Date (YYYY-MM-DD)



Signature

DoC Revison_ 02_022025

UK
CA



2 Safety

Read this first



This Instruction Manual is designed for operators and service engineers working with the supplied Alfa Laval product.

Operators must read and understand the **Safety, Installation and Operating** instructions of the supplied Alfa Laval product before carrying out any work or before you put the supplied Alfa Laval product into service!

Not following the instructions can result in serious accidents.

This documentation describes the authorized way to use the supplied Alfa Laval product. Alfa Laval will take no responsibility for injury or damage if the equipment is used in any other way.

This Instruction Manual is designed to provide the user with the information to perform tasks safely for all phases in the lifetime of the supplied Alfa Laval product.

The operator shall always read the chapter **Safety** first. Hereafter the operator can skip to the relevant section for the task to be carried out or for the information needed.

Always read the chapter **Technical Data** thoroughly.

This is the complete Instruction Manual for the supplied Alfa Laval product.

NOTE

The illustrations and specifications in this Instruction Manual were effective at the date of printing. However, as continuous improvements are our policy, we reserve the right to alter or modify the Instruction Manual without prior notice or any obligation.







The English version of the Instruction Manual is the original manual. Alfa Laval cannot be held responsible for incorrect translations. In case of doubt, the English version applies.

2.1 Safety Signs

Mandatory Action Signs

	General mandatory action sign.
	Refer to instruction manual.
	Use eye protection - safety glasses.
	Use protective hand wear - safety gloves.
	Wear protective equipment - safety helmet.
	Use ear protection in noisy environments - noise protector.
	Wear protective equipment - safety shoes.

Warning Signs

	General warning.
	Transportation with forklift truck or other industrial vehicles if heavy.
	Hot surface and burning danger.
	Cutting danger.
	Corrosive substance.
	Crushing of hands.

2.2 Safety Precautions

All warnings in the Instruction Manual are summarised on these pages. Pay special attention to the instructions below so that severe personal injury and/or damage to the supplied Alfa Laval product is avoided.



General

	<p>To prevent unexpected start and contact with electrical live and moving parts.</p> <p>Always disconnect the power supply and air supply safely:</p> <ul style="list-style-type: none"> • The power supply disconnecting device and air supply must be disconnected (in off position) and locked.
--	---





Transportation and Lifting

 	<p>Never lift or elevate in any way other than described in this manual.</p> <p>Always use the original packaging or similar during transportation.</p> <p>Always ensure that personnel must have experience with lifting operations.</p> <p>Always ensure that all connections are disconnected before attempting to remove the valve from the installation.</p> <p>Always ensure that no leakage of lubricants can occur.</p> <p>Always drain liquid out of the valves before transportation.</p> <p>Always ensure sufficient fixing of the valve during transportation - if specially designed packaging material is available, it must be used.</p> <p>Always ensure that compressed air is released.</p>
 	<p>Always use designated lifting points if defined. Ensure that the lifting equipment is suitable for the supplied Alfa Laval product.</p> <p>Always ensure that the unit is securely fixed during transportation.</p> <p>Always ensure the lifting point to be in line with center of gravity. Adjust lifting point if necessary.</p> <p>Always use suitable transport device ie. forklift or pallet lifter.</p> <p>Always use appropriate lifting equipment for heavy parts when relevant. Use lifting logs when available.</p> <p>Always keep an eye on the load and stay clear during the lifting operation.</p>




Installation

	<p>If the local safety regulations prescribe that the installation has to be inspected and approved by responsible authorities before the valve is put into service, consult with such authorities before installing the equipment and have the projected installation approved by them.</p> <p>Always release compressed air after use.</p> <p>Always assemble the valve completely before startup and make sure everything is in place and correctly tightened.</p>
	<p>Always ensure that the valve and pipelines are depressurized, emptied, and cooled down to ambient temperature before installation, inspection, assembly, or dismantling of the valve.</p>


Operation

	<p>Always read Technical Data thoroughly.</p> <p>Never operate the valve unless a correct installation has been verified.</p> <p>Never dismantle the valve during operation or when pressurized.</p> <p>Never operate or sterilise the Carlsberg Flask without bursting disc.</p>
	<p>Never touch the valve or pipelines when hot.</p>
	<p>Always rinse well with clean water after cleaning.</p> <p>Always handle lye and acid with great care.</p> <p>Always follow the instructions in the safety data sheets from the suppliers of cleaning agents, detergents, oils etc.</p>
	<p>Never touch moving parts of the valve during operation.</p> <p>Always release compressed air after use.</p>


Maintenance

	<p>In order to optimise the operation of the supplied Alfa Laval product and to minimize the down time due repair activities, the maintenance includes:</p> <ul style="list-style-type: none"> • Inspection and maintenance of the supplied Alfa Laval product: strictly follow the technical documentation • Preventive maintenance: visual inspection of the supplied Alfa Laval product followed by necessary adjustments and planned periodic replacement of wear and tear parts • Repairs: unscheduled break down of a component, often causing the system to stop. Damaged components must be replaced • Stock of Alfa Laval genuine spare parts: Alfa Laval recommend keeping a stock of genuine spare parts facilitating preventive maintenance and reducing downtime in case of unplanned break downs
 	<p>Always release compressed air after use.</p> <p>Always ensure that the valve and pipelines are depressurized, emptied, and cooled down to ambient temperature before dismantling the valve.</p>



Storage


	<p>Alfa Laval recommend:</p> <ul style="list-style-type: none"> • Store the supplied Alfa Laval product as supplied in original packaging • Port opening(s) should be protected against any ingress • Store in a clean, dry place without direct sunlight or UV light • Temperature range -5 °C to +40 °C (23 °F - 104 °F) • Relative humidity less than 60% • No exposure to corrosive substances (including contained air)
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Noise


	<p>Under certain operating conditions, the supplied Alfa Laval product and/or the systems in which they are installed can produce high sound pressure levels. Appropriate noise protection measures should be taken when necessary and in accordance with local legislation.</p>
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Hazards


 	<p>Burn Hazard</p> <ul style="list-style-type: none"> • Lubrication oil, machine parts and various machine surfaces can be hot and cause burns. Wear protective gloves
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	<p>Corrosive Hazard</p> <ul style="list-style-type: none"> • Always handle cleaning liquids, lye and acid with great care and in accordance with separate instructions for those fluids • When using chemical cleaning agents and lubricants, make sure you follow the general rules and suppliers recommendation regarding ventilation, personnel protection etc.
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	<p>Cut Hazard</p> <ul style="list-style-type: none"> • Sharp edges, especially on bowl discs and threads, can cause cuts. Wear protective gloves
---	--

	<p>Crushing Hazard</p> <ul style="list-style-type: none"> • Avoid placing hands into valve orifice pinch points
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Safety check

	<p>A visual inspection of any protective device (shield, guard, cover or other) on the supplied Alfa Laval product shall be carried out at least every 12 months. If the protective device is lost or damaged, especially when this leads to deterioration of safety performance, it shall be replaced. The fixing of the protective device should only be replaced with fixings of the same or an equivalent type.</p> <p>Inspection acceptance criteria:</p> <ul style="list-style-type: none"> • It should not be possible to reach moving parts originally protected by a protective device • The protective device must be securely mounted • Ensure that screws for the protective device are securely tightened <p>Procedure in case of non-acceptance:</p> <ul style="list-style-type: none"> • Fix and/or replace the protective device
---	--

2.3 Warning Signs in Text

Pay attention to the safety instructions in this Instruction Manual.

Below are definitions of the four grades of warning signs used in the text where there is a risk for injury to personnel or damage to the supplied Alfa Laval product.

DANGER

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate damage to the supplied Alfa Laval product.

NOTE

Indicates important information to simplify or clarify procedures.

2.4 Requirements of Personnel

Operators

The operators shall read and understand this Instruction Manual.

Maintenance personnel

The maintenance personnel shall read and understand this Instruction Manual. The maintenance personnel or technicians shall be skilled within the field required to carry out the maintenance work safely.

Trainees

Trainees can perform tasks under the supervision of an experienced employee.

People in general

The public shall not have access to the supplied Alfa Laval product.

In some cases, specially skilled personnel may need to be hired (i.e. electricians, welders). In some cases the personnel has to be certified according to local regulations with experience of similar types of work.

2.5 Recycling Information

Unpacking

Packing material may consist of wood, plastics, cardboard boxes and in some cases metal straps.



- Wood and cardboard boxes can be reused, recycled or used for energy recovery
- Plastics should be recycled or burnt at a licensed waste incineration plant
- Metal straps should be sent for material recycling

Maintenance

During maintenance, oil (if used) and wear parts in the supplied Alfa Laval product should be replaced.

- Oil and all non-metal wear parts must be disposed of in accordance with local regulations
- Rubber and plastics should be burnt at a licensed waste incineration plant. If not available they should be disposed of in accordance with local regulations
- Bearings and other metal parts should be sent to a licensed handler for material recycling
- Seal rings and friction linings should be disposed of to a licensed land fill site. Check your local regulations
- All metal parts should be sent for material recycling
- Worn out or defected electronic parts should be sent to a licensed handler for material recycling

Scrapping

At end of use, the equipment must be recycled in accordance with the relevant local regulations. Besides the equipment itself, any hazardous residues from the process liquid must be considered and dealt with in a proper manner. When in doubt, or in the absence of local regulations, please contact your local Alfa Laval sales company.

How to contact Alfa Laval

Contact details for all countries are continually updated on our website.

Please visit www.alfalaval.com to access the information directly.

3 Introduction

The Alfa Laval SB Carlsberg Flask is ideal for laboratory-scale wort sterilization and pure yeast culture propagation in brewery applications. The flask is made of materials that meet stringent hygienic requirements and can be easily autoclaved.

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4 Installation

4.1 Unpacking/Delivery

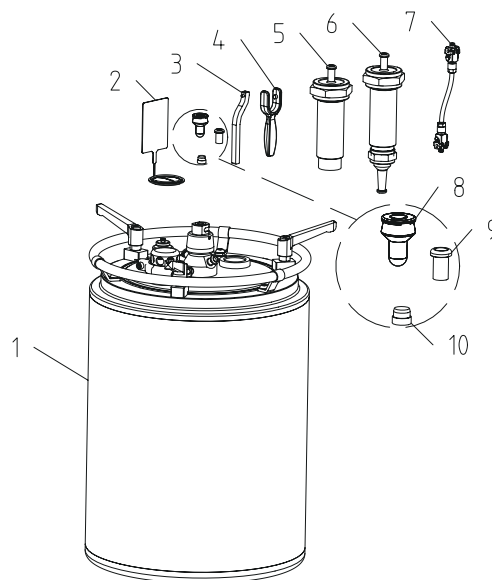
NOTE

The instruction manual is part of delivery. Study the instructions carefully.

The items refer to the [Parts Lists and Exploded Views](#) on page 33.

Alfa Laval cannot be held responsible for incorrect unpacking.

Pos.	Qty.	Denomination
1	1	Carlsberg Flask
2	1	Bursting disc
3	1	Assembly key
4	1	Quick opening key
5	1	Filter house I
6	1	Filter house II
7	2	3m Silicone house w. 2 clip-on
8	1	Membrane Q
9	1	Weld in clip-on
10	1	Rubber plug NR
	2	Hydrophobic cotton



Parts will be found inside the Carlsberg Flask.

- 1 Remove any packing materials from the Carlsberg Flask.
- 2 Inspect the valve/valve parts for visible transport damage.
- 3 Avoid damaging the valve/valve parts.

4.2 General Installation

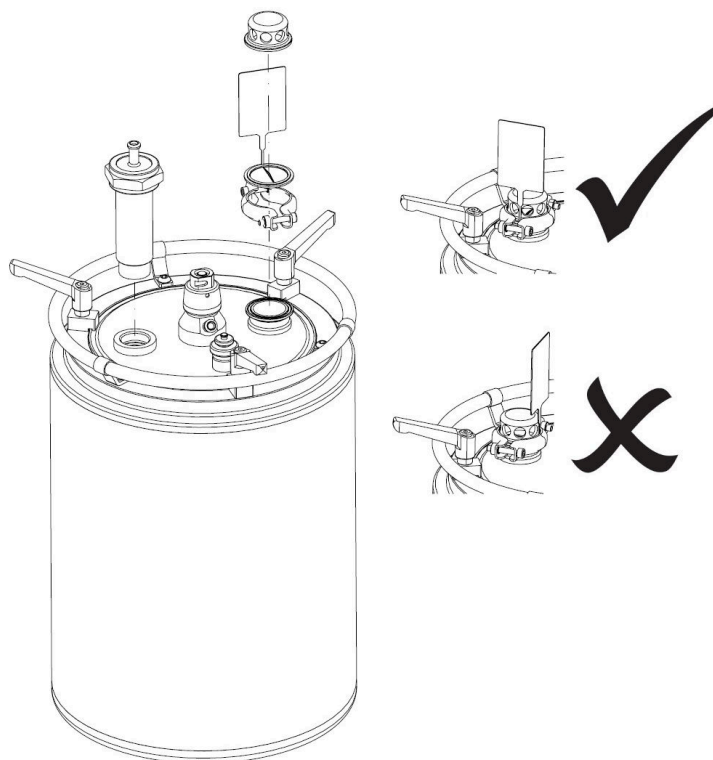
NOTE

Always read the *Technical Data* on page 29 thoroughly.

Alfa Laval cannot be held responsible for incorrect installation.

4.3 Valve Assembly

- 1 Fill the filter house with hydrophobic cotton.
- 2 Connect the filter house to the threaded connection.
Make sure connection is tight.
- 3 Connect bursting disc and protection cap to clamp connection.
Make sure bursting disc is positioned as in illustration to avoid the clamp damaging the bursting disc.



5 Operation

5.1 General Operation



WARNING

The Carlsberg Flask is equipped with a bursting disc for safety purposes.

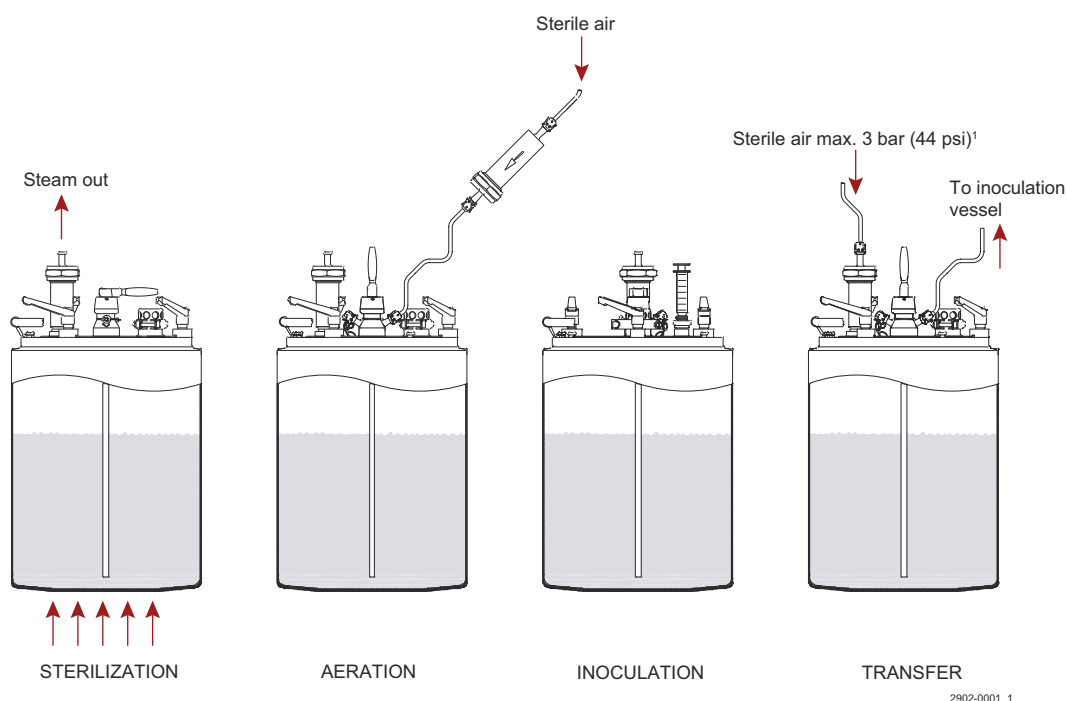
Never operate Carlsberg Flask without bursting disc.

Alfa Laval cannot be held responsible for incorrect operation.

Operation range

Net volume	Total volume	Recommended transfer pressure	Allowable pressure PS
25 l / 6.6 gal	33 l / 8.7 gal	2-3 bar / 29-44 psi ¹	6 bar / 87 psi

¹ Supplied silicone hoses (9615118801) max. 3 bar / 44 psi.



5.2 Sterilisation



After sterilisation wear protective gear to protect against burns from hot surfaces.



The flask is filled with wort to the net capacity corresponding to approximately 80% of the total volume. Sterilisation takes place in an autoclave, on a gas burner or an electric hotplate. After sterilisation, the flask is placed in a refrigerator or a cold room in order to cool down the wort to the desired working temperature.

The filter house can remain mounted on the flask during sterilisation; however, if the filter house has been sterilised separately, it is important to remount it in the end phase of wort sterilisation while steam is still evaporating from the flask so that the filter connection is also sterilised.

5.3 Aeration

Aeration of the cold wort is carried out through the membrane sample valve connected to the aeration lance. It is important to use sterile air for safety reasons; it is recommended to mount a filter in front of the membrane sample valve.

Air supply and flow should be moderate in order not to create too much foam. Foam must not enter the filter house as it will destroy the filter and may lead to blockage.

Practical tests with open lid will be the easiest way to determine the right conditions for air supply as well as duration of aeration (less than 10 minutes). Yeast culture from such tests should not be used.

5.4 Inoculation

When the wort is well aerated, yeast culture can be introduced aseptically through the membrane fitting by means of a syringe with a content of 150 - 200 ml (5 - 7 fl oz).

Alternatively, dry yeast culture can be transferred to the flask via the empty filter house. In case a bigger quantity of yeast is needed, the lid can be dismounted and the culture poured into the flask – this procedure requires sterile surroundings and maximum precautions.

5.5 Transfer

During transfer of pure yeast culture from the Carlsberg Flask to the yeast propagation plant, it is important that all hose tails are fastened firmly and safely with hose clips.

The transfer of pure yeast culture into the propagation plant should take place under aseptic conditions. This procedure requires sterile air supply to the filter house and the yeast culture can be pressed from the flask into the inoculator when the membrane sample valve on the lid of the Carlsberg Flask has been connected to a sample device on the receiving vessel (the inoculator).

Connecting hose, membrane sample valve and all connections must be thoroughly sterilised by alcohol or steam before this transfer takes place. Between operations, the valve may be sealed with alcohol which should be blown out with sterile air prior to use.

When the connection has been established and the inoculation is to take place, we recommend that the sterile air supply is opened first, thereafter the membrane sample valve on top of the flask, and finally the sample device on the inoculator is opened.

When the culture has been transferred (bubbling noise in the inoculator), we recommend continuing with air supply for another 1-2 minutes in order to ensure that all the culture is transferred.

Finally, the sample device on the receiving vessel and the membrane sample valve on the Carlsberg Flask can be closed, air supply is stopped.

5.6 Recommended Cleaning

WARNING Risk of burns!

Never touch the supplied product or the pipelines when sterilizing.



CAUTION

Always handle lye and acid with great care.



NOTE

The supplied product is designed for cleaning in place (CIP).

NaOH = Caustic soda.

HNO₃ = Nitric acid.

The cleaning agents must be stored/disposed of in accordance with current regulations/directives.

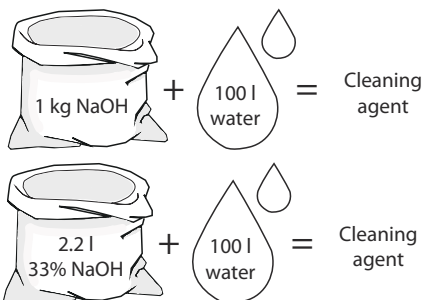
Examples of cleaning agents

NOTE

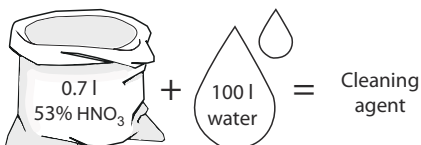
Use clean water free from chlorides.

Metric System

1. 1% by weight NaOH at 70°C

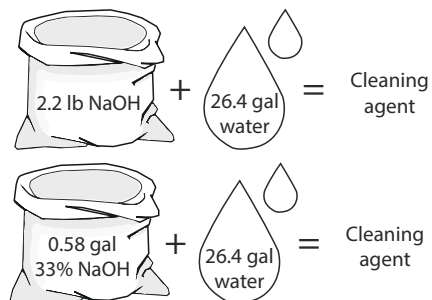


2. 0.5% by weight HNO₃ at 70°C

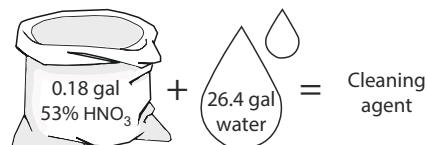


Imperial System

1. 1% by weight NaOH at 158°F



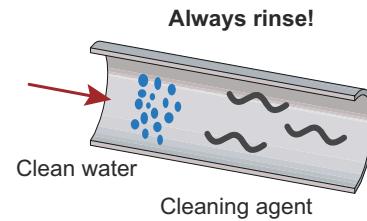
2. 0.5% by weight HNO₃ at 158°F



1. Avoid excessive concentration of the cleaning agent ⇒ **Dose gradually!**
2. Adjust the cleaning flow to the process
Milk sterilization/viscous liquids ⇒ Increase the cleaning flow!



Always rinse well with clean water after the cleaning.



5.6.1 Cleaning

After use, the Carlsberg Flask should be taken apart and cleaned manually with normal detergents.

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6 Maintenance

6.1 General Maintenance

**WARNING****Burning hazard!**

Always read the [Technical Data](#) on page 29 thoroughly.

Never service the Carlsberg Flask when it is hot.

Never service the Carlsberg Flask when under pressure.



Below are some guidelines for maintenance intervals

O-ring and seals replacement every 2-5 years.

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7 Technical Data

NOTE

Technical data must be observed during installation, operation and maintenance.
All personnel should be informed about the technical data.

7.1 Technical Data

Net volume	Total volume	Recommended transfer pressure	Allowable pressure	Weight
25 l / 6.6 gal.	33 l / 8.7 gal.	2-3 bar / 29-44 psi ¹	6 bar / 87 psi	26 kg / 57 lbs

¹ Supplied silicone hoses (9615118801) max. 3 bar / 44 psi.

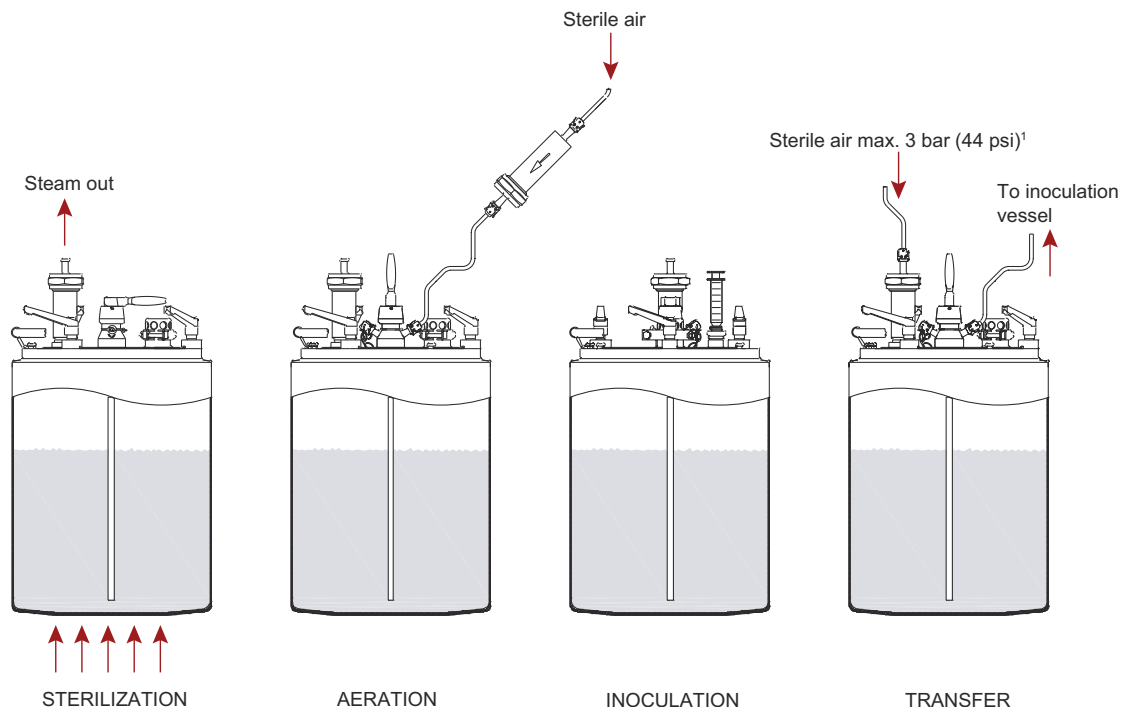
7.2 Physical Data

Materials

Product wetted steel parts:	EN 1.4307 (AISI 304L)
Product wetted seals:	EPDM
Product wetted O-ring:	Silicone
Product wetted steel surfaces:	Surface roughness Ra < 0.2 um / Ra < 32 µin

Temperature

Max. operating temperature (product dependent):	20 °C / 68 °F
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2902-0001_1

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8 Spare Parts

For every delivered Alfa Laval Product, a spare part list is available.

This spare part list contains a range of the most common wear parts for the machinery. If any component not mentioned is required, please contact your local Alfa Laval representative for availability.

You can find our spare part catalogue at <https://hygienicfluidhandling-catalogue.alfalaval.com>.

Always use Alfa Laval genuine spare parts. The warranty of Alfa Laval products is dependent on use of Alfa Laval genuine spare parts.

8.1 Ordering Spare Parts

When ordering spare parts, please always state:

1. Serial number (if available)
2. Item number/spare part number (if available)
3. Capacity or other relevant identification

8.2 Alfa Laval Service

Alfa Laval is represented in all larger countries of the world.

Do not hesitate to contact your local Alfa Laval representative, with any questions or requirement of spare parts for Alfa Laval equipment.

8.3 Warranty - Definition



The rules of Intended use are absolute. Use of the supplied Alfa Laval product is allowed only when in compliance with the technical data supplied with the Intended use.

Differing utilisation, other than agreed with Alfa Laval Kolding A/S, exclude any liability and warranty.

No modification or alteration of the supplied Alfa Laval product is allowed, unless explicit permission is granted by Alfa Laval Kolding A/S.



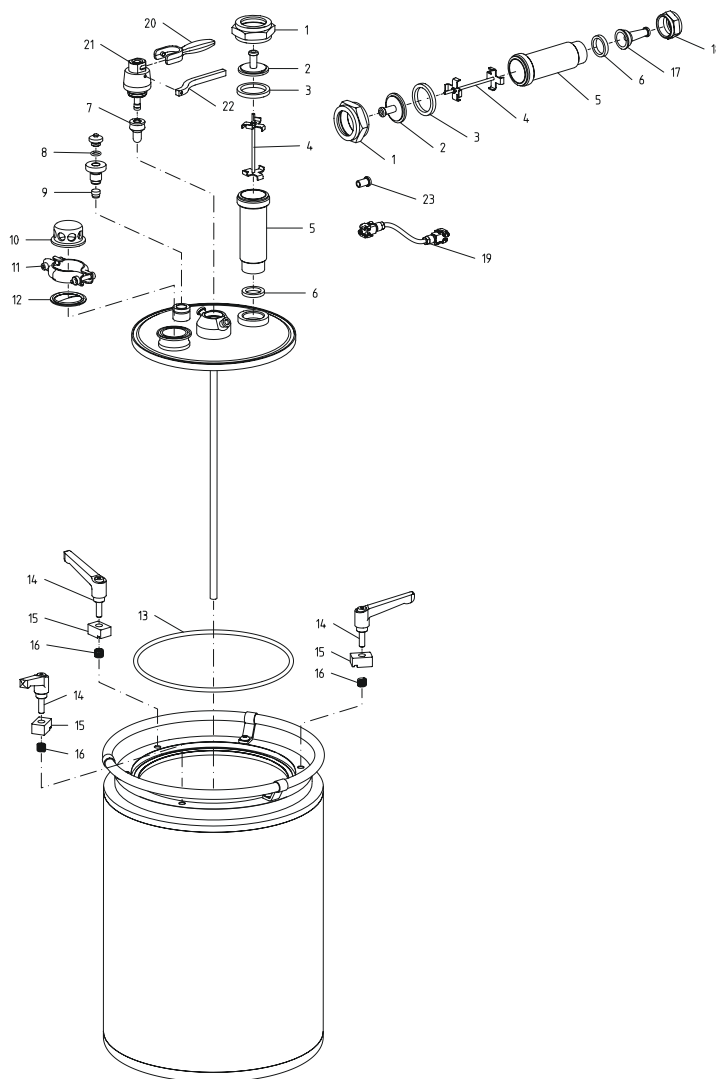
Liability and warranty are excluded:

- If advice and instruction of operating instructions are ignored
- For incorrect operation or for insufficient maintenance of the supplied Alfa Laval product
- For any kind of change of function of the supplied Alfa Laval product without prior written agreement by Alfa Laval Kolding A/S
- If supplied Alfa Laval product is modified by non-authorised persons
- If using the supplied Alfa Laval product without attention of appropriate safety regulations, (see [Safety](#) on page 7)
- If protection equipment is not used and vessel process / ancillary equipment is not brought to a standstill
- If the supplied Alfa Laval product and ancillary parts are not properly maintained (to be executed in intervals and including fitting of prescribed replacement parts)

When exchanging parts, only original replacement parts, released from the manufacturer, must be used.

9 Parts Lists and Exploded Views

9.1 SB Carlsberg Flask



Pos.	Qty.	Denomination
1	1	Filter nut large
2	1	Filter top large
3	2	Seal, EPDM
4	1	Filter holder
5	1	Filter house
6	2	Seal, EPDM
7	1	Membrane Q, 20 pcs
8	1	O-ring, NBR
9	1	Rubber plug NR, 100 pcs
10	1	Protection cap
11	1	Clamp
12	1	Bursting disc

Pos.	Qty.	Denomination
13	1	O-ring, Q
14	3	Handle
15	3	Block
16	3	Spring
17	1	Filter top small
18	1	Filter nut small
19	2	3 m silicone hose w. 2 clip-on
20	1	Quick opening key
21	1	MSV actuator manual 6 bar
22	1	Assembly key
23	1	Weld in clip-on